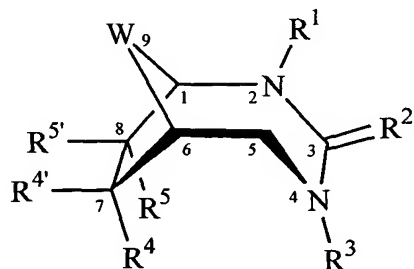


We Claim:

1. A method for the treatment of an HCV infection in a host comprising administering an effective amount of a compound of the formula (I):



(I)

or a pharmaceutically acceptable salt thereof, wherein:

- (j) each R^4 and $R^{4'}$ is independently hydrogen, halogen (F, Br, Cl, I), pseudohalogen, -CN, -NO₂, lower alkyl of C₁-C₆, halogenated lower alkyl, hydroxyl, alkoxy, CH₂OH, CH₂OR⁶, -NH₂, -NR⁶R⁷, or a residue of an amino acid; wherein at least one of R^4 and $R^{4'}$ is hydrogen;

- (k) each R^5 and $R^{5'}$ is independently hydrogen, halogen (F, Br, Cl, I), pseudohalogen, -CN, NO₂, lower alkyl of C₁-C₆, or halogenated lower alkyl, hydroxyl, alkoxy, CH₂OH, CH₂OR⁶, -NH₂, -NR⁶R⁷, or a residue of an amino acid; wherein at least one of R^5 and $R^{5'}$ is hydrogen;

- (l) each R^6 and R^7 is independently hydrogen, alkyl, halogenated alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl or acyl;

- (m) R^1 is hydrogen, lower alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl, aminoalkyl, aminoaryl or aminoacyl of C₁-C₆;

- (n) R^2 is oxygen, sulfur, -NR' or -CR'₂, wherein each R' is independently hydrogen, lower alkyl, alkylene, alkenyl, aryl, or aralkyl of C₁-C₆;

- (o) R^3 is hydrogen, lower alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl, aminoalkyl, aminoaryl or aminoacyl of C₁-C₆ (C₁, C₂, C₃, C₄, C₅, C₆);

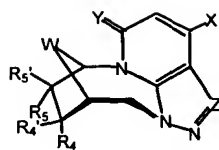
(p) alternatively if R^2 is $-NR'$, then R^1 or R^3 can come together with $-NR'$ to form a substituted or unsubstituted 5-7 membered ring that can include one or more heteroatoms; or

5 (q) if R^2 is $-CR'_2$, then R^1 or R^3 can come together with $-CR'_2$ to form a substituted or unsubstituted 5-7 membered ring that can include one or more heteroatoms; or

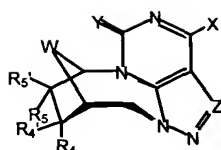
(r) if R^2 is $-CR'_2$, R^1 and R^3 can come together with $-CR'_2$ to form a substituted or unsubstituted bicyclic ring that can include one or more heteroatoms;

optionally with a pharmaceutically acceptable carrier.

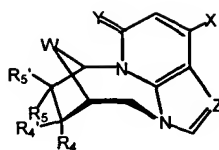
- 10 2. The method of claim 1, wherein R^5 and/or $R^{5'}$ is OH.
3. The method of claim 1, wherein R^5 or $R^{5'}$ is a residue of an amino acid.
4. The method of claim 3, wherein the amino acid is valine.
5. The method of claim 3, wherein the amino acid is L-valine.
- 15 6. A method for the treatment of an HCV infection in a host comprising administering an effective amount of a compound of the general formula **1 (A-D)**, **2 (A-D)**, **3 (A-B)**, **4 (A-B)**, **5 (A-B)**, **6 (A-B)**, **7 (A-C)** or **8 (A)**:



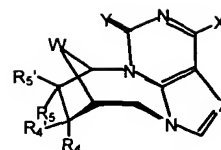
1 (A)



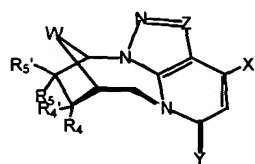
1 (B)



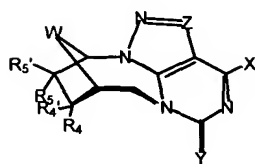
1 (C)



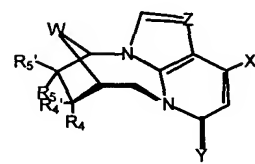
1 (D)



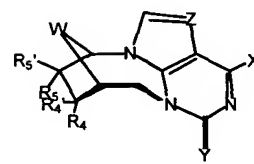
2 (A)



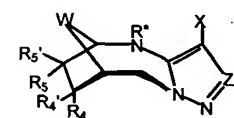
2 (B)



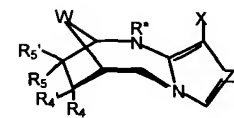
2 (C)



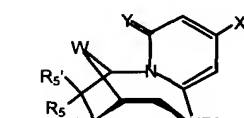
2 (D)



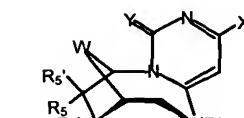
3 (A)



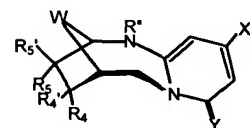
3 (B)



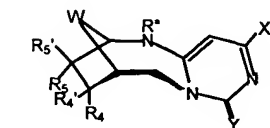
4 (A)



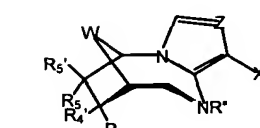
4 (B)



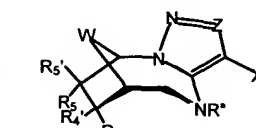
5 (A)



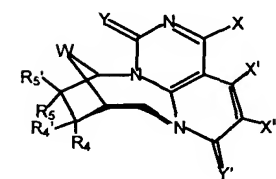
5 (B)



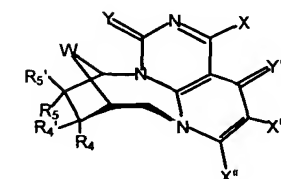
6 (A)



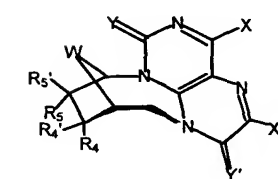
6 (B)



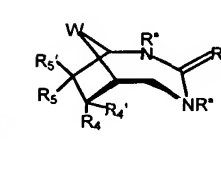
7 (A)



7 (B)



7 (C)



8 (A)

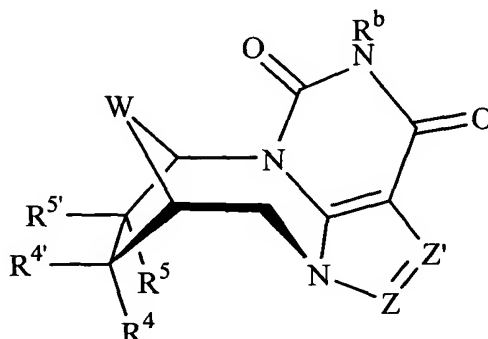
or a pharmaceutically acceptable salt thereof, wherein:

- (a) each R^4 and $R^{4'}$ is independently hydrogen, halogen (F, Br, Cl, I), pseudohalogen, -CN, -NO₂, lower alkyl of C₁-C₆, halogenated lower alkyl, hydroxyl, alkoxy, CH₂OH, CH₂OR⁶, -NH₂, -NR⁶R⁷, or a residue of an amino acid; wherein at least one of R^4 and $R^{4'}$ is hydrogen;

- (b) each R^5 and $R^{5'}$ is independently hydrogen, halogen (F, Br, Cl, I), pseudohalogen, -CN, NO_2 , lower alkyl of C_1-C_6 , halogenated lower alkyl, hydroxyl, alkoxy, CH_2OH , CH_2OR^6 , $-NH_2$, $-NR^6R^7$, or a residue of an amino acid; wherein at least one of R^5 and $R^{5'}$ is hydrogen;
- 5 (c) each R^6 and R^7 is independently hydrogen, alkyl, halogenated alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl or acyl;
- (d) R^2 is oxygen, sulfur, $-NR'$ or $-CR'_2$, wherein each R' is independently hydrogen, lower alkyl, alkylene, alkenyl, aryl, or aralkyl of C_1-C_6 ;
- (e) each Z , Z' and Z'' is independently CH, CX or N;
- 10 (f) each X , X' and X'' is independently hydrogen, halogen (F, Cl, Br or I), NH_2 , NHR^c , NR^cR^c , $NHOR^c$, $NR^cNR^cR^c$, OH, OR^c , SH or SR^c ;
- (g) each Y and Y' is O, S, NH, NR^c , NOR^c or Se;
- (h) each R^a is hydrogen, lower alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl, aminoalkyl, aminoaryl or aminoacyl of C_1-C_6 ; and
- 15 (i) each R^c , $R^{c'}$ and $R^{c''}$ independently is hydrogen, lower alkyl, lower alkenyl, aryl, or arylalkyl such as unsubstituted or substituted phenyl or benzyl, cycloalkyl, cyclopropyl;
- optionally with a pharmaceutically acceptable carrier.

20

7. A method for the treatment of an HCV infection in a host comprising administering an effective amount of a compound of the general formula:



or a pharmaceutically acceptable salt thereof, wherein:

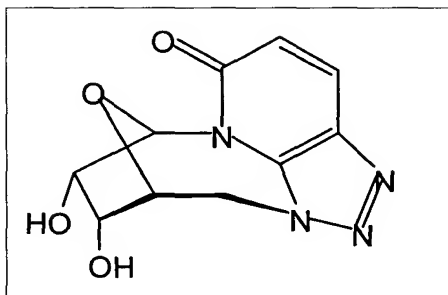
- 5 (a) each R^4 and $R^{4'}$ is independently hydrogen, halogen (F, Br, Cl, I), pseudohalogen, -CN, -NO₂, lower alkyl of C₁-C₆, halogenated lower alkyl, hydroxyl, alkoxy, CH₂OH, CH₂OR⁶, -NH₂, -NR⁶R⁷, or a residue of an amino acid; wherein at least one of R^4 and $R^{4'}$ is hydrogen;
- 10 (b) each R^5 and $R^{5'}$ is independently hydrogen, halogen (F, Br, Cl, I), pseudohalogen, -CN, NO₂, lower alkyl of C₁-C₆, halogenated lower alkyl, hydroxyl, alkoxy, CH₂OH, CH₂OR⁶, -NH₂, -NR⁶R⁷, or a residue of an amino acid; wherein at least one of R^5 and $R^{5'}$ is hydrogen;
- (c) each R^6 and R^7 is independently hydrogen, alkyl, halogenated alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl or acyl;
- 15 (d) R^2 is oxygen, sulfur, -NR' or -CR'₂, wherein each R' is independently hydrogen, lower alkyl, alkylene, alkenyl, aryl, or aralkyl of C₁-C₆;
- (e) each Z, Z' and Z'' is independently CH, CX or N;
- (f) each X, X' and X'' is independently hydrogen, halogen (F, Cl, Br or I), NH₂, NHR^c, NR^cR^{c'}, NHOR^c, NR^cNR^{c'}R^{c''}, OH, OR^c, SH or SR^c;
- 20 (g) each Y and Y' is O, S, NH, NR^c, NOR^c or Se;
- (h) each R^a is hydrogen, lower alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl, aminoalkyl, aminoaryl or aminoacyl of C₁-C₆;

(i) R^b is R^c , OR^c , NH_2 , NHR^c or $NR^cR^{c'}$; and

(j) each R^c , $R^{c'}$ and $R^{c''}$ independently is hydrogen, lower alkyl, lower alkenyl, aryl, or arylalkyl such as unsubstituted or substituted phenyl or benzyl, cycloalkyl, cyclopropyl;

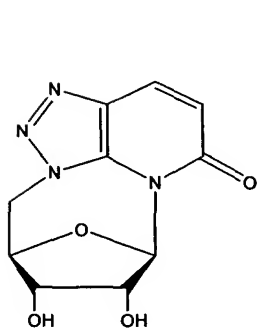
5 optionally with a pharmaceutically acceptable carrier.

8. A method for the treatment of an HCV infection in a host comprising administering an effective amount of a compound of the general formula:

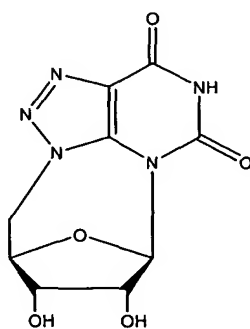


10 or a pharmaceutically acceptable salt thereof, optionally with a pharmaceutically acceptable carrier.

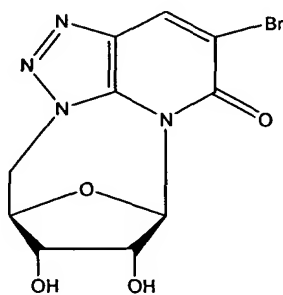
9. A method for the treatment of an HCV infection in a host comprising administering an effective amount of a compound of the general formula:



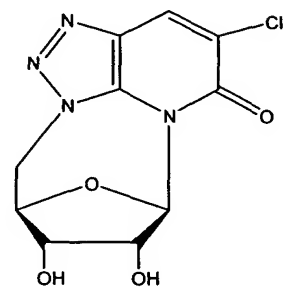
1 (J)



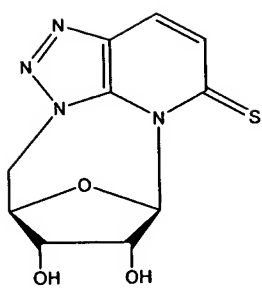
1 (K)



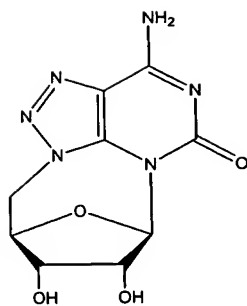
1 (L)



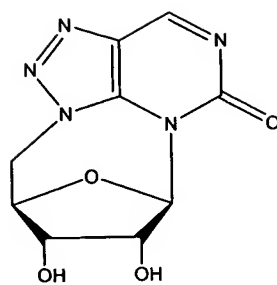
1(M)



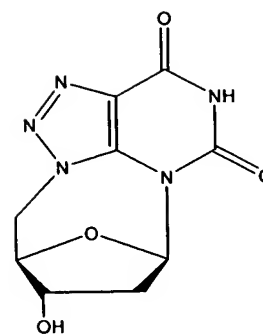
1 (N)



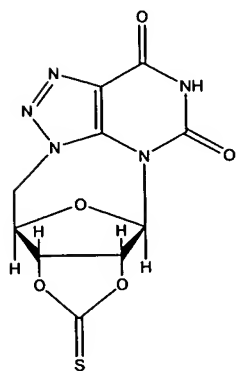
1 (O)



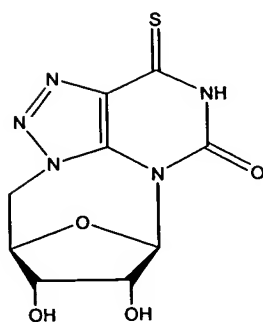
1 (P)



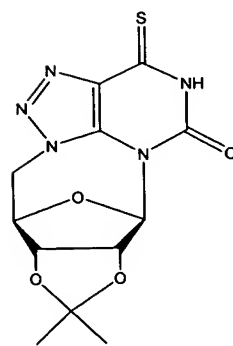
1 (Q)



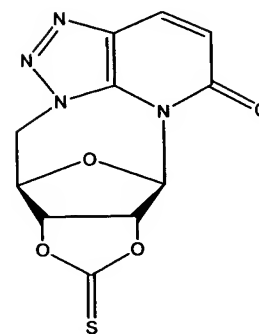
1 (R)



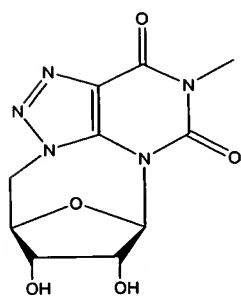
1 (S)



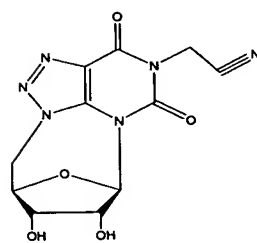
1 (T)



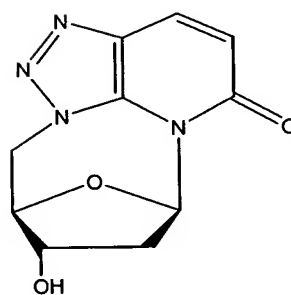
1 (U)



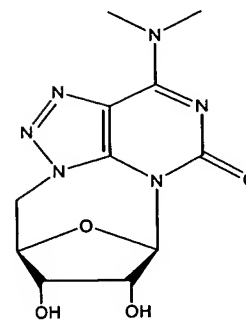
1 (V)



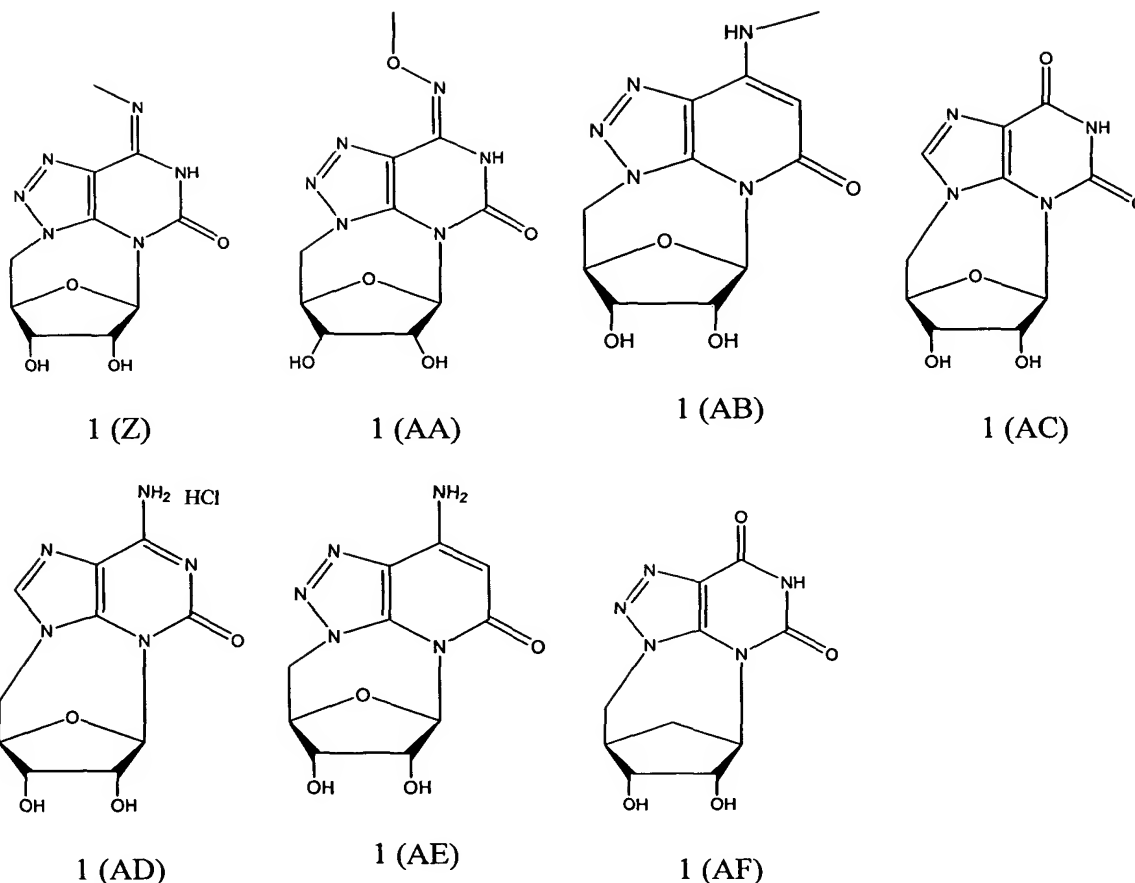
1 (W)



1 (X)



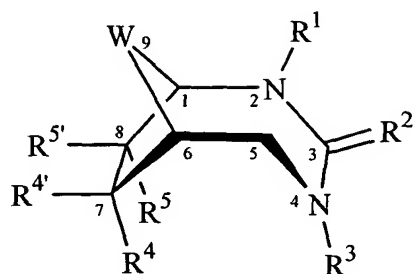
1 (Y)



or a pharmaceutically acceptable salt thereof, optionally with a pharmaceutically acceptable carrier.

10. The method of any one of claims 1, 6, 7, 8, or 9, further comprising administering to the host in combination and/or alternation one or more effective anti-viral agents, optionally with a pharmaceutically acceptable carrier.
11. The method of claim 10, wherein the anti-viral agent is selected from the group consisting of ribavirin, interferon, PEGASYS (pegylated interferon alfa -2a), INFERGEN (interferon alfacon-1), OMNIFERON (natural interferon), ALBUFERON, REBIF (interferon beta-1a), Omega Interferon, Oral Interferon Alpha, Interferon gamma- 1b, Interleukin-10, IP-501, Merimebodib VX-497, AMANTADINE (Symmetrel), HEPTAZYME, IDN-6556., XTL-002, HCV/MF59, CIVACIR, LEVOVIRIN, VIRAMIDINE, ZADAXIN (thymosin alfa-1), CEPLANE (histamine dihydrochloride), VX 950 / LY 570310, ISIS 14803, IDN-6556 and JTK 003.

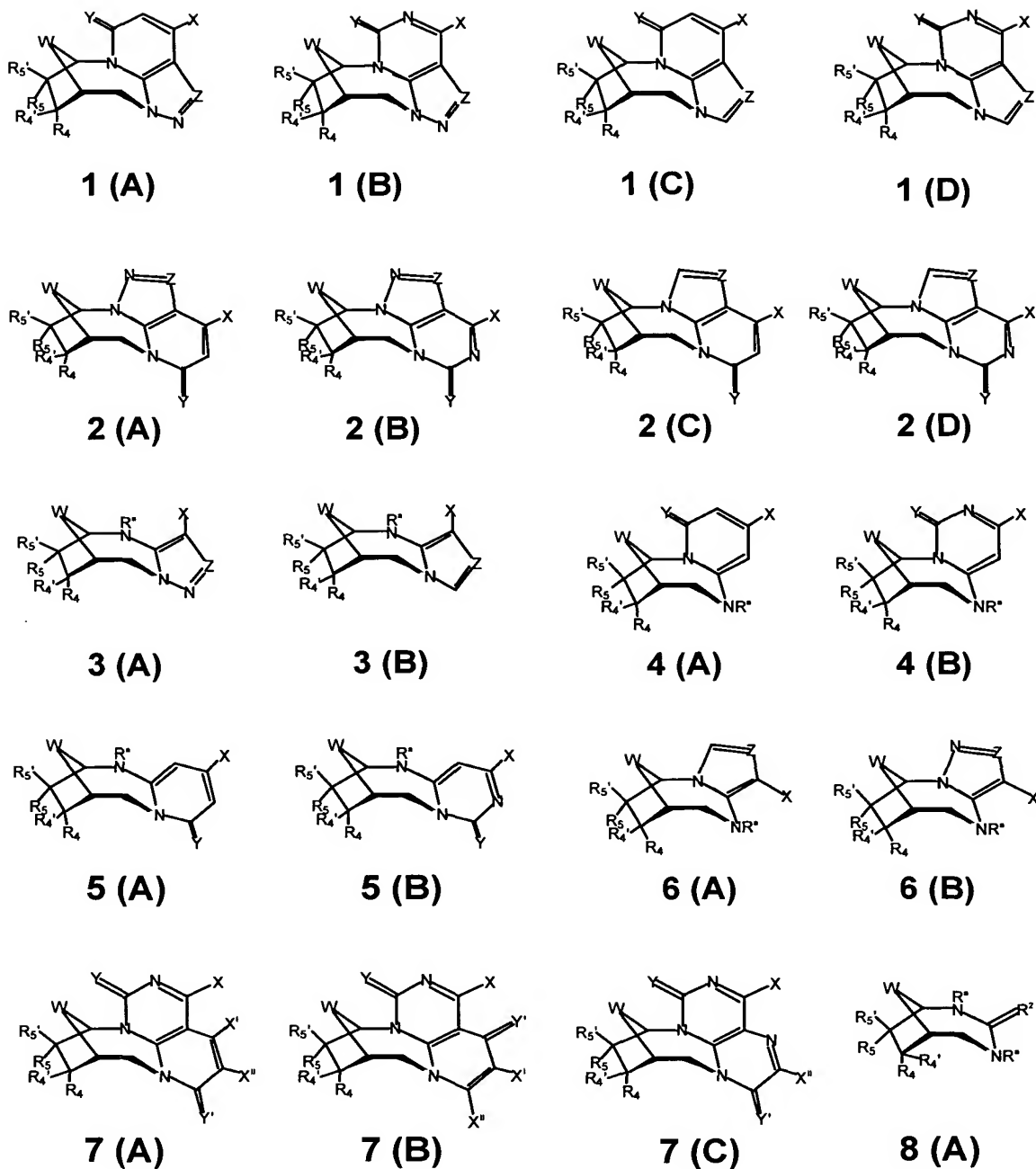
12. The method of any one of claims 1, 6, 7, 8, or 9, wherein the host is a human.
13. A compound of the formula (I):



(I)

- 5 or a pharmaceutically acceptable salt thereof, wherein:
- (a) each R^4 and $R^{4'}$ is independently hydrogen, halogen (F, Br, Cl, I), pseudohalogen, -CN, -NO₂, lower alkyl of C₁-C₆, halogenated lower alkyl, hydroxyl, alkoxy, CH₂OH, CH₂OR⁶, -NH₂, -NR⁶R⁷, or a residue of an amino acid; wherein at least one of R^4 and $R^{4'}$ is hydrogen;
- 10 (b) each R^5 and $R^{5'}$ is independently hydrogen, halogen (F, Br, Cl, I), pseudohalogen, -CN, NO₂, lower alkyl of C₁-C₆, halogenated lower alkyl, hydroxyl, alkoxy, CH₂OH, CH₂OR⁶, -NH₂, -NR⁶R⁷, or a residue of an amino acid; wherein at least one of R^5 and $R^{5'}$ is hydrogen;
- 15 (c) each R^6 and R^7 is independently hydrogen, alkyl, halogenated alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl or acyl;
- (d) R^1 is hydrogen, lower alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl, aminoalkyl, aminoaryl or aminoacyl of C₁-C₆;
- (e) R^2 is oxygen, sulfur, -NR' or -CR'₂, wherein each R' is independently hydrogen, lower alkyl, alkylene, alkenyl, aryl, or aralkyl of C₁-C₆;
- 20 (f) R^3 is hydrogen, lower alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl, aminoalkyl, aminoaryl or aminoacyl of C₁-C₆;
- (g) alternatively if R^2 is -NR', then R^1 or R^3 can come together with -NR' to form a substituted or unsubstituted 5-7 membered ring that can include one or more heteroatoms; or

- (h) if R^2 is $-CR'_2$, then R^1 or R^3 can come together with $-CR'_2$ to form a substituted or unsubstituted 5-7 membered ring that can include one or more heteroatoms; or
- (i) if R^2 is $-CR'_2$, R^1 and R^3 can come together with $-CR'_2$ to form a substituted or unsubstituted bicyclic ring that can include one or more heteroatoms.
- 5
14. The compound of claim 13, wherein R^5 and/or $R^{5'}$ is OH.
15. The compound of claim 13, wherein R^5 or $R^{5'}$ is a residue of an amino acid.
16. The compound of claim 15, wherein the amino acid is valine.
17. The compound of claim 15, wherein the amino acid is L-valine.
- 10 18. A compound of the general formula **1 (A-D)**, **2 (A-D)**, **3 (A-B)**, **4 (A-B)**, **5 (A-B)**, **6 (A-B)**, **7 (A-C)** or **8 (A)**:



or a pharmaceutically acceptable salt thereof, wherein:

- (a) each R^4 and $R^{4'}$ is independently hydrogen, halogen (F, Br, Cl, I), pseudohalogen, -CN, -NO₂, lower alkyl of C₁-C₆, halogenated lower alkyl, hydroxyl, alkoxy, CH₂OH, CH₂OR⁶, -NH₂, -NR⁶R⁷, or a residue of an amino acid; wherein at least one of R^4 and $R^{4'}$ is hydrogen;

(b) each R^5 and $R^{5'}$ is independently hydrogen, halogen (F, Br, Cl, I), psuedohalogen, -CN, NO_2 , lower alkyl of C_1-C_6 , halogenated lower alkyl, hydroxyl, alkoxy, CH_2OH , CH_2OR^6 , $-NH_2$, $-NR^6R^7$, or a residue of an amino acid; wherein at least one of R^5 and $R^{5'}$ is hydrogen;

5 (c) each R^6 and R^7 is independently hydrogen, alkyl, halogenated alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl or acyl;

(d) R^2 is oxygen, sulfur, $-NR'$ or $-CR'_2$, wherein each R' is independently hydrogen, lower alkyl, alkylene, alkenyl, aryl, or aralkyl of C_1-C_6 ;

(e) each Z, Z' and Z'' is independently CH, CX or N;

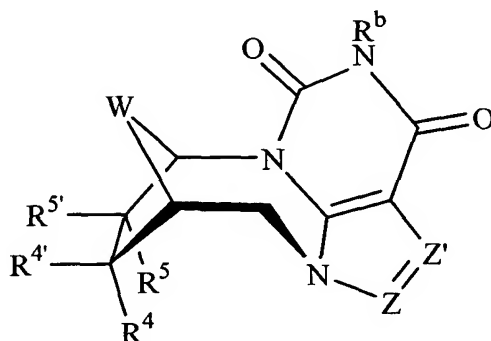
10 (f) each X, X' and X'' is independently hydrogen, halogen (F, Cl, Br or I), NH_2 , NHR^c , $NR^cR^{c'}$, $NHOR^c$, $NR^cNR^{c'}R^{c''}$, OH, OR^c , SH or SR^c ;

(g) each Y and Y' is O, S, NH, NR^c , NOR^c or Se;

(h) each R^a is hydrogen, lower alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl, aminoalkyl, aminoaryl or aminoacyl of C_1-C_6 ; and

15 (i) each R^c , $R^{c'}$ and $R^{c''}$ independently is hydrogen, lower alkyl, lower alkenyl, aryl, or arylalkyl such as unsubstituted or substituted phenyl or benzyl, cycloalkyl, cylcopropyl.

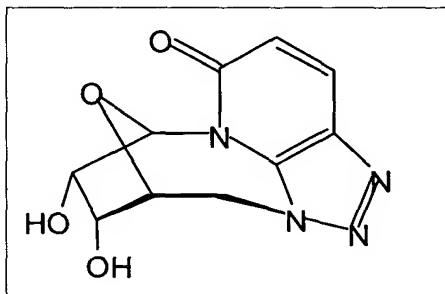
19. A compound of the general formula:



or a pharmaceutically acceptable salt thereof, wherein:

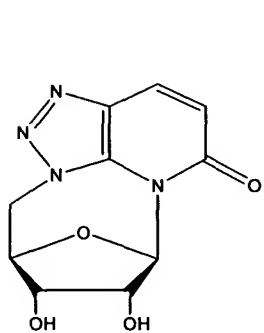
- (a) each R^4 and $R^{4'}$ is independently hydrogen, halogen (F, Br, Cl, I), psuedohalogen, -CN, -NO₂, lower alkyl of C₁-C₆, halogenated lower alkyl, hydroxyl, alkoxy, CH₂OH, CH₂OR⁶, -NH₂, -NR⁶R⁷, or a residue of an amino acid; wherein at least one of R^4 and $R^{4'}$ is hydrogen;
- 5 (b) each R^5 and $R^{5'}$ is independently hydrogen, halogen (F, Br, Cl, I), psuedohalogen, -CN, NO₂, lower alkyl of C₁-C₆, halogenated lower alkyl, hydroxyl, alkoxy, CH₂OH, CH₂OR⁶, -NH₂, -NR⁶R⁷, or a residue of an amino acid; wherein at least one of R^5 and $R^{5'}$ is hydrogen;
- (c) each R^6 and R^7 is independently hydrogen, alkyl, halogenated alkyl, alkylene, 10 alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl or acyl;
- (d) R^2 is oxygen, sulfur, -NR' or -CR'₂, wherein each R' is independently hydrogen, lower alkyl, alkylene, alkenyl, aryl, or aralkyl of C₁-C₆;
- (e) each Z, Z' and Z'' is independently CH, CX or N;
- (f) each X, X' and X'' is independently hydrogen, halogen (F, Cl, Br or I), NH₂, NHR^c, 15 NR^cR^{c'}, NHOR^c, NR^cNR^{c'}R^{c''}, OH, OR^c, SH or SR^c;
- (g) each Y and Y' is O, S, NH, NR^c, NOR^c or Se;
- (h) each R^a is hydrogen, lower alkyl, alkylene, alkenyl, carbocycle, aryl, heterocycle, heteroaryl, aralkyl, aminoalkyl, aminoaryl or aminoacyl of C₁-C₆;
- (i) R^b is R^c, OR^c, NH₂, NHR^c or NR^cR^{c'}; and
- 20 (j) each R^c, R^{c'} and R^{c''} independently is hydrogen, lower alkyl, lower alkenyl, aryl, or arylalkyl such as unsubstituted or substituted phenyl or benzyl, cycloalkyl, cylcopropyl.

20. A compound of the general formula:

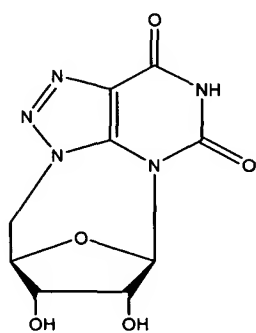


or a pharmaceutically acceptable salt thereof.

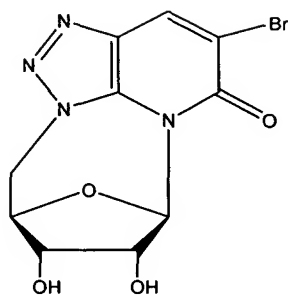
21. A compound of the general formula:



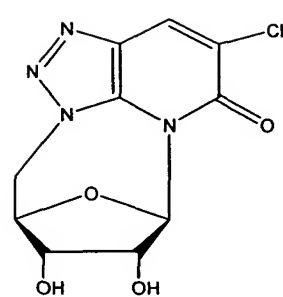
1 (J)



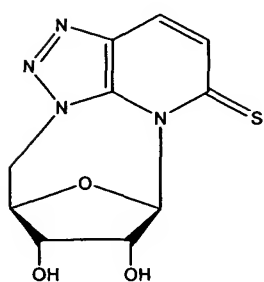
1 (K)



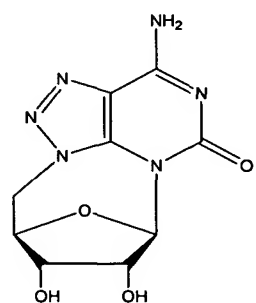
1 (L)



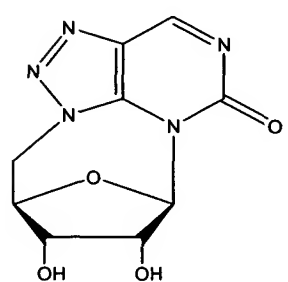
1 (M)



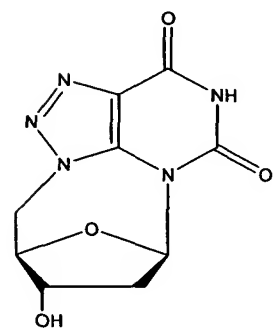
1 (N)



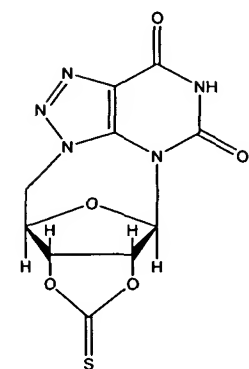
1 (O)



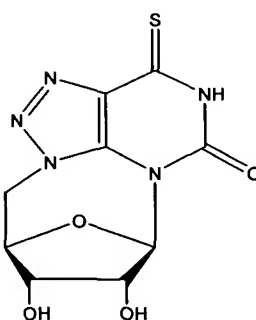
1 (P)



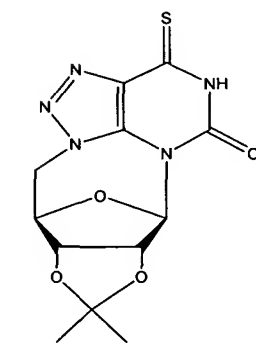
1 (Q)



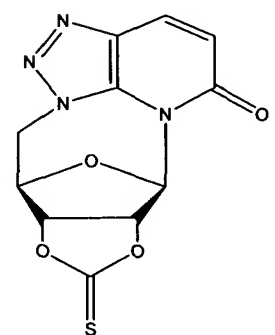
1 (R)



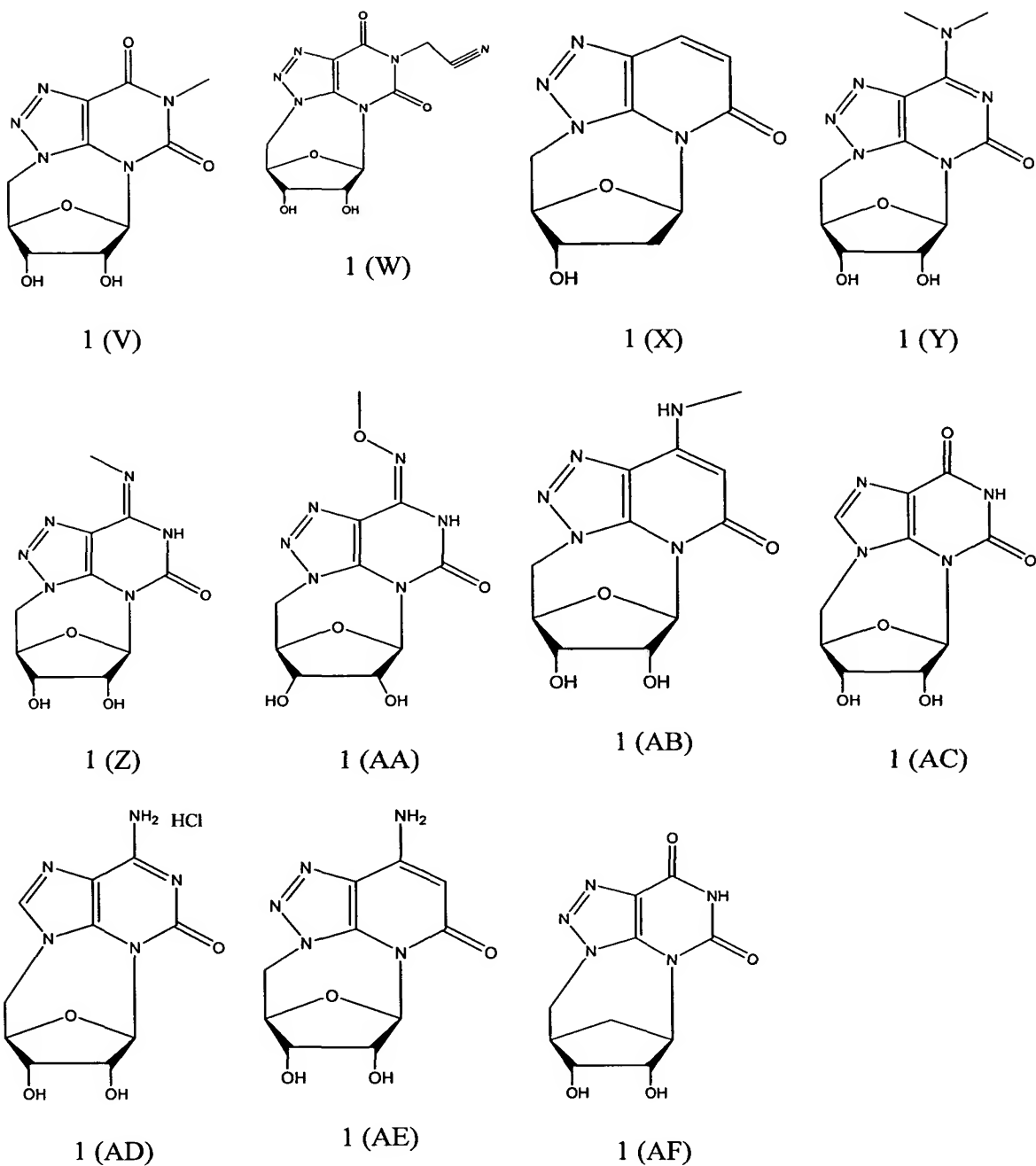
1 (S)



1 (T)



1 (U)



or a pharmaceutically acceptable salt thereof.

22. A pharmaceutical composition comprising an effective amount of any one of the compounds of claims 13, 18, 19, 20, or 21, together with a pharmaceutically acceptable carrier.

23. A pharmaceutical composition comprising an effective amount of any one of the compounds of claims 13, 18, 19, 20, or 21, together with one or more effective anti-viral agents, optionally with a pharmaceutically acceptable carrier.

24. The pharmaceutical composition of claim 23, wherein the anti-viral agent is selected from the group consisting of ribavirin, interferon, PEGASYS (pegylated interferon alfa -2a), INFERGEN (interferon alfacon-1), OMNIFERON (natural interferon), ALBUFERON, REBIF (interferon beta-1a), Omega Interferon, Oral Interferon Alpha, Interferon gamma- 1b, Interleukin-10, IP-501, Merimebodib VX-497, AMANTADINE (Symmetrel), HEPTAZYME , IDN-6556., XTL-002, HCV/MF59, CIVACIR, LEVOVIRIN, VIRAMIDINE, ZADAXIN (thymosin alfa-1), CEPLANE (histamine dihydrochloride), VX 950 / LY 570310, ISIS 14803, IDN-6556 and JTK 003.